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ABSTRACT

This working paper is a product of a regional study in industrial South Wales of the determinants of participation and non-participation in post-compulsory education and training, with special reference to processes of change in the patterns of these determinants over time and to variations between geographical areas. This paper describes the notion of learning trajectories and considers determinants of an individual's participation in education or training. It discusses a door-to-door survey of 1,104 householders in industrial South Wales to obtain their life work and educational histories that were analyzed to identify trajectories--characteristic patterns of participation and non-participation in post-compulsory education and training. These 5 categories with 11 trajectories are identified: disaffected learner (non-learner, near non-learner); delayed learner (delayed learner, deferred student, twilight learners); transitional learner (false-start trainee, false-start student); immature learner (still at school, still in full-time education); and lifetime learner (work-based learner, early learner). The analysis that led to determination of six predictor variables--area of residence, gender, type of school, attempting qualifications, qualification at age 16, and occupational class of father--is explained. Appendixes include development of learning trajectories. Contains 57 references. (YLB)

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PATTERNS OF PARTICIPATION IN ADULT EDUCATION AND TRAINING

A Cardiff and Bristol University ESRC- funded Learning Society Project

WORKING PAPER 7

LIFETIME LEARNING TRAJECTORIES: Close encounters of five kinds

Stephen Gorard, Gareth Rees, Ralph Fevre and John Furlong

1997

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Introduction

This project, funded by the ESRC as part of the Learning Society Programme, is a regional study in industrial South Wales of the determinants of participation and non-participation in post-compulsory education and training, with special reference to processes of change in the patterns of these determinants over time and to variations between geographical areas. The study combines contextual analysis of secondary data about education and training providers with a regional study of several generations of families in South Wales via survey, semi-structured interviews and taped oral histories. The background to the study is further described in Gorard *et al.* (1996) while the methodology is outlined in Gorard *et al.* (1997_a). The study took place in three markedly different centres in industrial South Wales during 1996 and 1997. This paper describes the background to the notion of learning trajectories, and their use in the analysis of the survey results. Their relevance lies in the need to identify trends in the mix of these trajectories over time, in order to devise realistic policies to facilitate the creation of a genuine learning society.

The notion of a trajectory

Economic and employment trajectories which define characteristic patterns of movement through an economic system, have been useful concepts in summarising the impact of social origins and the experience of key transitions and training, and in explaining changes over time caused by industrial change (e.g. Penn *et al.* 1990.) In general, past research on training has concentrated on its effect on employment (Main and Shelly 1990) or later earnings (e.g. Dolton *et al.* 1994, DfEe 1995). Studies of the effects of training on further training such as

this one are rare, even though the notion of an educational trajectory is not a new one. Similar notions have also been useful in describing patterns of variance in short-term transition, such as that from primary to secondary school (e.g. Halsey *et al.* 1980), or from school to work (e.g. Bynner 1992). However, in both of these cases the trajectories are relatively short, whereas in the present study the collection of detailed life histories from respondents as old as 65 has allowed the creation of trajectories covering the entire range of adult participation in education and training over a working life of 50 years or more.

Educational pathways were used as part of the analysis by Halsey *et al.* (1980), who envisaged possible educational careers as a set of routes which divided and joined at various points. Critical issues along the route were formal examinations such as the 11+ for selection to a grammar school, and common entrance for admission to a "public" school. At each point on the route there is at least an implicit choice for the traveller, and each choice affects the route followed and so affects the appearance and likelihood of subsequent choices. Having defined their simple map, Halsey *et al.* looked at career and educational outcomes to see how commonly frequented were the various paths, and at variations in flow along the paths over time, and at differences between the users of different paths. Theoretical explanations of these various observations were then advanced, and used to test other theories concerning the "political arithmetic" of education. One of the problems with this kind of analysis for the present study is that the map used was defined in advance, based upon legal definitions of formal education. This is comparatively easy for compulsory and continuous full-time education which has a relatively stable policy framework, although even here by using pre-defined paths, Halsey *et al.* (1980) did not realise perhaps the very great diversity of private schooling in the UK (Gorard 1996), particularly the "reluctant private sector" (Walford 1995) and so equated all private schools with common entrance. Since post-compulsory education and training over the last 40 years does not have a straightforward picture, this study, while using the notion of educational trajectories, defines them empirically rather than *a priori*.

A similar notion of educational pathways was used by Roberts *et al.* (1991) who proposed that with each step taken after the age of 16, the destinations of each individual at age 19 become more probable. They therefore did not wish to give undue significance to what may be inconsequential personal decisions, once someone is launched on what appears to be a largely determined transitional trajectory. It is the paradox of transition literature that research emphasises the influence of determining characteristics such as class, ethnicity and gender in leading to inequality, while policies are made and advertised on the basis of more avowedly economic assumptions of the existence of public choice (e.g. Boyd *et al.* 1994). Both views have some merit and both may reveal some truth (see Gambetta 1987, Hodkinson *et al.* 1996).

The notion of a post-compulsory learning trajectory has been a thread running through the first six of these working papers. A trajectory as used in this study may be summarised as a quasi-determinist view of an individual's participation in formal education and training after initial schooling, based on the idea that the autonomy of the individual is bounded to a large extent by external structural and social constraints mediated by an internalised view of the value and availability of opportunities. This leads to discernible regularities in the patterns of participation between individuals within a group, and to inertia and therefore predictability within the pattern for each individual. The notion of a trajectory therefore minimises the impact of individual choices and decision-making in explaining the operation of a market for education (see Rees *et al.* 1997). However, it also allows a role for weaker determinants not springing from the socialisation of the individual, such as an imperfect knowledge of changes in provision (see Gorard *et al.* 1997_a for a fuller discussion of the role of determinants in a causatory model). In this way, although the actual opportunities for learning available to each individual may be important in determining participation or not, it may be that the individual's social construction of those opportunities, as seen through the filter of culturally permissible variations within a pre-set trajectory, are more important still. If the trajectory that one starts out on at age 16 is largely determined by social background, its path remains quasi-determinist over time because of these attitudinal constraints, reinforced by structural barriers such as lack of entry qualifications, time, and transport (see Gorard *et al.* 1997_b for a fuller discussion of the barriers to participation). The individual's attitude to learning, their learning identity, is based on their view of the value of learning, stemming from their educational experiences, not simply of success or failure, but of an entire educational culture (Fevre *et al.* 1997). It is this that affects their later evaluation not merely of what is available but also what is appropriate.

Trajectories can encompass many different kinds of formal learning, from full-time continuous education, to health and safety training at work, to learning a language from audio tapes in the car driving to work. As many as possible of these are included in the present study, since despite government funding of research in this area and consequently a prevalent emphasis on the needs of the national economy in that research, a learning society may be seen as oppositional to the current social order in some respects. It must celebrate learning for its own sake, for the retired and economically inactive, and learning that is independent of government-appointed teachers and employer-approved trainers (Gorard *et al.* 1997_b).

The mix of trajectories apparent in the population at any time would be affected by local regional conditions (Roberts and Parsell 1990), since potential determinants such as job availability, age of population, and social class profile

are also regionally specific. Industrial south Wales has seen major economic, educational and social changes in the last 50 years (see Gorard 1997$_a$ for example). The frequency of each trajectory would be liable to change over time, since the determinants such as the nature of local provision and the barriers such as lack of transport also change in both structure and relative importance (cf. Banks *et al.* 1992).

Potential determinants

One problem with using existing typologies as a theoretical basis of the trajectories in the present study is that they are either too general, with insufficient emphasis on education and training, and too limited in elapsed time, ending at age 19. Granted that immutable characteristics and early experience set one on a path, there is as yet no clear idea of how this will turn out in terms of later training. Despite the decision to base the trajectories on empirical data, reinforcing its primacy over mere theory by allowing the data to speak first (cf. Gorard 1997$_b$), it is still useful to consider in advance the kinds of data patterns that might be observed in the study, to use the results of previous attempts to model trajectories of one kind or another, and so begin to create a framework for analysis, as well as assist in the development of pertinent questions for the survey and interview instruments. At a very simple level, an individual's participation in education or training requires only two things - availability of a suitable opportunity and the motivation to be involved. However, neither is as straightforward as it appears at first sight.

Opportunities

Opportunities change over time because social mores, national policies, expenditure by government and employers, and the economy change. The closure of coal-mines in south Wales may have had as much impact on male participation in work-based training as the closure of textile plants in Rochdale has had on participation in employment (Penn *et al.* 1990), for example. In addition, as the actual opportunities change so must each person's perception of them, but the two may not be contemporaneous. Those who are more "alert" may be aware of a wider range of possibilities (Willms and Echols 1992), and even those who realise that a change has taken place may evaluate it in terms of obsolete criteria, such as when parents use knowledge of their own schooling to decide on a new school for their child at age 11 (Gorard 1997$_c$), or when Training Credits are confused with the prior Youth Training Scheme (Hodkinson *et al.* 1996). Devising a new educational scheme or policy cannot by itself transform patterns of participation, in the form of widening as well as merely increasing access, or reducing inequality and social stratification (NIACE 1994). Such changes also require

consideration of the barriers that people face and their motivation to overcome them in order to take part. For the government, one of the advantages of this may be that it appears to shift the responsibility for non-participation to the individual, whereas there are many indications that opportunities are only relevant within a framework provided by an individual's social background and previous experiences. "*Career routes have origins much deeper in the structure of society than in the employment opportunities on offer in the particular locality or in the credentials young people acquire .... from the education system*" (Banks *et al.* 1992, p.43).

Education

The adult trajectories for each individual start at the UK compulsory school leaving age (15 before 1972 and 16 since then). This is a critical moment as the course of each person's future career may be determined at that point (Scottish Office 1991). Compulsory schooling ends and they have a choice of staying on at school, moving to some other form of education or training, getting a job, or unemployment (Scottish Office 1991). The Employment Department Group (1994) have a slightly different classification dividing early post-compulsory education and training into attempting academic qualifications via a school or college, or attempting broadly vocational qualifications such as the GNVQ via a college, or attempting specific vocational qualifications such as the NVQ via a modern apprenticeship, youth training, and work-based training. Each person's background characteristics and their experience of education so far may play a large role in making the decision. The system is to a large extent selective, and it is generally those who have done well at school who will continue in full-time education (Smithers and Robinson 1991).

The importance of early educational experience has been underlined by several studies. Later educational experience seldom has a significant compensatory effect. Those who did well at school continue into later episodes of learning, others generally do not (Istance and Rees 1994). The learning trajectory is truly underway by the end of compulsory schooling and there are few second chances despite policy changes to improve peoples' chances at age 16 (Roberts and Parsell 1990). In the 16-19 Study, the best predictor of a person's economic activity at age 20 was the same as at age 16, and there is no reason to assume that predicting participation in learning, as in this new study, will be any different. Peoples' early experience of education can affect their attitude lifelong (Taylor and Spencer 1994). Encouragement and success at school and in the home may lead to a desire to learn, while fear of failure leads to avoidance of further learning. The choices people make in life are often made immaturely and implicitly (Taylor and Spencer 1994), perhaps long before 16. They tend to get on a particular track, perhaps because of significant other's education, rather than make clear decisions.

The memory of compulsory education can produce later passivity when faced with vocational education and training (Hand *et al.* 1994). Educational attainment is part of determining final destination (Roberts and Parsell (1990). The best qualified of those on YTS also get the best employer-based training, while many of those who become unqualified adults spend most of their lives unemployed or in part-time unskilled work (Banks *et al.* 1992).

At that point the relevant "baggage" individuals are carrying in addition to their personal and family background characteristics might be the type of school attended (Halsey *et al.* 1980), whether they attended school regularly, their level of certification, and whether they had "failed" any qualifications. Many of these measures will correlate strongly for individuals. Based on these findings, an early framework for POCET trajectories might be as below (although bearing in mind that several other distinctions are possible the emphasis is on keeping the potential paths to a minimum at this stage) :

Path A. Well qualified at 16, generally successful in examinations, parents often of more prestigious occupational class
Path B. Poorly qualified at 16, possible record of failure in examinations, parents often of less prestigious occupational class

The main decision at 16 will be whether to continue with full-time education and training, whether to join the workforce, or whether to become economically inactive. The decision is likely to be influenced by the path at that stage with Path A generally continuing in education and Path B not. The ESRC 16-19 Initiative tentatively identified five educational and career pathways in those early years (Roberts and Parsell 1988). These were academic education, non-academic education (both more likely for girls), school-to-job, two step school-to-job, and not unemployed. Like Halsey *et al.*, the authors believed that the pathways would diverge and coalesce as the cohort being studied advanced in age, and like them they assumed that outcomes were dependent on the pathway chosen to some extent, but that the outcomes of education also affected the likelihood and realism of future choices. However, it is interesting to note that both groups used only recursive, or unidirectional causation models in their analysis of the cohort data, and while this may have been done for convenience or due to lack of knowledge of the alternatives, it is peculiar that there is little discussion of the fact (see Gorard *et al.* 1997a). The data analysis and the social theory used to justify and explain it do not match (cf. Gambetta 1987). Roberts and Parsell (1988) asked whether the pathways are the outcomes or the cause of the 16-19 careers, and without rejecting the former explanation, appeared to favour the latter since in reality most students' choices were constrained by local opportunities, prior attainment, gender, and family background. Those students who had the certification outcomes allowing them to continue in education after 16 were least

affected by local job opportunities. A continuation of the learning trajectory above might be:

Path A.1 - academic education, leading to A levels, and so to probability of higher education
Path A.2 - other education, leading to vocational qualification, and so to a job.
Path B.1 - job market, leading to a job if the local market permits
Path B.2 - government scheme, leading to a job, or unemployment
Path B.3 - unemployed, or economically inactive.

In general, the more prestigious jobs with better chances of training go to graduates (Smithers and Robinson 1991). A clear majority of students in the UK enter higher education with A levels, which in most cases are only taken by those with five or more GCSEs grade A-C taken at one sitting. Since until recently only 35% get the GCSEs, 18% the A levels and 15%, early selection by examination helps to launch the individual on a particular trajectory. Again, while several sub-divisions of this scheme are possible (such as Path A to unemployment), and progress along any may be disrupted by financial and personal pressures, these are a likely set of possible outcomes at age 19. Once education is interrupted it is rarely resumed by 19 (Roberts and Parsell 1988). The education in Path A.1 could continue for a further seven years or more, but the cohort that this represents will decline with each elapsed year. The cohort is relatively small but increasing. The education in Path A.2 could continue for two years or more, but this group is and has always been small. The cohort for Path B.2 involving a government scheme, such as Youth Training, is even smaller than the above. For those moving to work, this is another crucial episode for later training, since their attitudes could be seriously affected by the ease of transition (Hand *et al.* 1994). Similar typologies have been suggested (Dolton *et al.* 1994), and variations on a theme. For example, the five main routes for 16-18 years olds were:

> academic study for at least two years
> one year only in post-compulsory education then into work
> through Youth Training into the labour force
> post-compulsory education then Youth Training (usually in that order)
> traditional transitions to work with neither education or training (Roberts and Parsell 1990).

There is evidence that however clearly established trajectories may (or may not) be, their pattern and frequency changes over time with economic, social and policy changes (Banks *et al.* 1992). For example, Further Education and Higher Education colleges are reporting a massive increase in home mature students from 1982 to 1992 (NIACE 1994). There are now more mature than young students in total in HE and more part-time students than full-time. The picture in

FE colleges is similar. Half of these students over 25 in HE do not have traditional standard entry qualifications such as A levels, and this proportion is significantly higher among women and students of recent ethnic minority origin (NIACE 1994). These figures, a continuation of a trend discernible in 1987 (Roberts and Parsell 1990) suggest a flexibility in formal education trajectories that was previously absent. This has significant implications for the range and number of trajectories that can be built in this new study spanning half a century.

Gender

One of the potential determinants of participation in formal adult learning is gender, although this is a determinant that is likely to interact with age/time in the period of study. By the 1990s young women were taking academic qualifications below degree level more frequently than men, while young men were more likely to receive formal vocational training (DfEe 1995). This is partly because women more frequently stay in immediate post-compulsory education, at least for the first two years. After this point the number of men prevails, since a large proportion of the women move on to something else (Dolton *et al.* 1994). This may have led to a gap between the qualifications of adult men and women, especially at NVQ level III among the workforce, chiefly due to differences in vocational certification (Felstead 1996). In fact, the gap in the population may be greater than 12% since there are more women not in work. There are regional differences between the gender gap, larger in Scotland but smaller in Northern Ireland for example. Similarly, the gap varies with age cohorts, reducing over time, but is generally larger for those living with a partner (Felstead 1996). The same analysis of the Quarterly Labour Force Survey 1994 suggested that while school-age children have little relevance to the gender gap, those with pre-school children show less of a gap, which at first sight is a surprise. Felstead (1996) explains this as self-selection by career-minded women, but a simpler explanation is that the difference is age-related (as above). It has been suggested that dependent children make no difference to the qualifications of men, but for women it is related to a higher frequency of vocational qualifications (perhaps another age-related finding). This kind of analysis equates qualifications with learning and skill, but since being a woman apparently reduces the chances of a qualification by around 25%, it is possible that qualifications by themselves are a poor guide to either (Felstead 1996).

There are clear differences in the subjects of study between the genders. In the same way that women are generally employed in a smaller range of industrial classifications, they generally study from a smaller range of subjects which they dominate numerically, such as education, biology, social studies and some humanities. Men dominate all of the rest (NIACE 1994). These differences are more sharply gendered in vocational qualifications (Nursing compared to City

and Guilds for example) than academic (Felstead 1996). As well as facing male domination of the workplace, girls are pressurised to diverge in their career path from boys (Banks *et al.* 1992). Men are also more likely to drop out of courses. Gender may also affect the probability of training. Some studies have found that men are more likely to receive training (NIACE 1994), and this is particularly true of permanent full-time male employees, even though these employees are a declining proportion. It is also true several of the barriers to training may affect women more than men, including lack of awareness of opportunities and the likelihood of domestic responsibilities (Maguire *et al.* 1993), especially for a lone parent. Socially, women may be at a disadvantage in gaining acceptance for their own interests, as evidenced by the finding that emancipation is a common theme in the motivation for women to return to formal education (Schratz 1996).

The conclusion to be drawn is that trajectories for men and women may be so different that they need to be identified separately, but it may also be that other unalterable characteristics such as early family class background, ethnicity and disability may lead to similar positions. Methodologically, should trajectories be defined for all cases and then cross-analysed, or should separate patterns be identified depending upon the nature of the "launchpad"? The chances of being on particular trajectories vary with gender (Roberts and Parsell 1990), class and race to such an extent that Banks *et al.* (1992) concluded that despite the existence of apparent choices at every stage there is a high level of predictability about the outcomes of education and the transition to work. More girls stay on in education after 16, but proportionately fewer go on to higher education, and they end up in a more restricted range of occupations.

Employment

In addition to 3.4 million adult learners at any time in formal education, there may also be another 2 to 3 million adults doing some form of learning in the UK (Maguire *et al.* 1993). Much of this will be work-related vocational training but there will also be learners for leisure, especially among those returning to education after a break. The scale of work-based training in the UK may be relatively small, with employees averaging only seven days training of all types per year (Deloitte *et al.* 1989). However, even this average figure is misleading since in fact over half of all employees in that study received no training (while nearly half of all manual workers have no qualifications, Smithers and Robinson 1991). There is also evidence that less training was available in 1984 than 1987 (Deloitte *et al.* 1989) so the figure is expected to be even less in the retrospective work histories in this new study. This agrees with the finding that training increased from 1980 to 1990 and has held at that level for 1994 (DfEe). Park (1994) suggests that some 19% of the workforce aged 16-54 were involved in some vocational learning at the time of the survey, and that a further 29% had

undertaken some in the past three years. Thus a total of 48% had been recently involved in vocational training and were classified as learners, so again it seems that half of the population gets some training and half does not. Most of the learners were in work, and most of those in work were learners.

The occupational class of the student affects their choice of subject for study in any learning episode. Unskilled and partly skilled workers preferring domestic and DIY subjects, skilled workers and associate professionals preferring languages and business studies, and professionals favouring arts and culture (NIACE 1994). These choices may of have a profound influence on employment, leisure activities and later patterns of participation in education. This may be part of the reason that those in higher socio-economic groups have been found to be more frequent participants in education and training (Maguire *et al.* 1993). Similarly, those employed in higher grades are both more likely to receive training and to be from a higher occupational class background. Trainees tend to be higher qualified and have a higher income as well as being younger (Maguire *et al.* 1993, NIACE 1994).

Changes in the job market will also have an effect on training trajectories. In 1975, 75% of jobs in Britain were full-time, but by 1988 that figure halved to 37% (Bynner 1989). In 1973 unemployment and vocational qualifications were rare among young people. This made the transition post-16 clear and relatively uncomplicated. Most people left school at 16 for full-time jobs, some stayed at school, of whom most continued to A level and attempted entry to HE, while a few moved to FE college for a vocational course (Bynner 1989). Training in work was through apprenticeship schemes, especially for boys, and day release for courses at college.

Since, apart from full-time students, substantive education and training may be more common for those with jobs, periods of unemployment can be relevant to the creation of trajectories. The frequency of unemployment has changed over the period of study, and is likely to affect patterns of participation. Unemployment has been reducing in South Wales since 1984 (Welsh Office 1995). This is another reason why time will be an important variable. As with gender the dilemma is whether to create the patterns and look for differences over time or create different patterns for each cohort. Unemployment is difficult to define empirically, since the chance of employment is increased by the same factors that also determine continuation in education, such as formal schooling and credentials (Mare and Winship 1985). In the short term therefore schooling delays and reduces work, while the major component of the increase in employment with age is due to leaving school. The change from school to work may also be associated with a succession of temporary jobs interspersed with unemployment (Mare and Winship 1985).

For most people in the workforce unemployment is a temporary state, and there is not a significant underclass of repeatedly unemployed people (Gershuny and Marsh 1994). Rather there may be a differential proneness to unemployment in the population which is systematically related to their economic position, which in turn is related to their background. People whose parents had jobs which were low in status and pay tend to take similar jobs which are more likely to lead to unemployment. There is no evidence that this reproductive cycle is decreasing, perhaps the reverse (Gershuny and Marsh 1994). Proportionately more males are unemployed, confirming the relevance of gender to trajectories, while less are middle-aged confirming the relevance of the passage of time in creating patterns. A young man's chance of employment rises with age until at least 34, remains stable in mid-life and declines after the age of 50 (Mare and Winship 1985). A young women's chance of employment also rises with age until 34, but it then declines exponentially (Davies 1994). In this case, age may be a summary variable for changes in husband's employment, and the number and ages of children. Education and qualification reduces the risk of unemployment, while being in a low status or low pay job increases it (Gershuny and Marsh 1994). Some studies have disputed this, finding local labour markets to be more relevant than education in assessing unemployment risk (Roberts and Parsell 1990), which is another way in which location could be a key factor in defining a training trajectory.

Path B.3 should probably be divided into:

B.3.a - those who leave unemployment for full-time activity
B.3.b - those who have repeated or lengthy periods of unemployment
B.3.c - those who become economically inactive at an early age

Stability

Normative analyses suggest clear and fairly rigid patterns for the determinants of post-compulsory training and to some extent this may be a valid picture. Behaviour is usually inertial (e.g. Dale and Davies 1994, Dolton *et al.* 1994). Prior choices may constrain future ones, and the stress of cognitive dissonance encourages consistency for individuals. Behaviour is often either state dependent, as it is consumer choice, since some people cherish stability, or time dependent, since the number of changes, such as moving house that someone can reasonably undertake is limited.

However, it would be absurd to ignore the possible effects of personal events playing a major part in determining the future for each individual. People can and do break out. Studies suggest that where people "break the mould" it may be

the result of a crisis such as redundancy, illness, divorce, or a death (Taylor and Spencer 1994). Even pregnancy and childbirth, which obviously have high impact especially for women, may be seen in the same way as crises such as domestic violence (Schratz 1996). They lead to strategies for coping which may involve learning, perhaps about the nature and causes of the incident, or to therapeutic opportunities, such as meeting new friends through adult education classes. Some people may simply look at their lives anew and realise that their immature choices are changeable, that they have alternatives. Most adults are aware that vocational and other educational opportunities exist (Hand *et al.* 1994), but this knowledge only becomes salient if a change in their lives leads them to see training as a helpful option. A sudden change in their life can lead to a need which leads to a cost-benefit analysis of training. *Force majeure* can then short cut the decision-making process to start or stop a training episode (Hand *et al.* 1994). Critical incidents can therefore influence and stimulate learning according to this account (Schratz 1996). They disturb individual life histories and can lead to unintentional learning. This interest in learning may be apparent early in an individual's biography but having not been satisfied initially, perhaps due to marriage or migration, is only later converted to concrete interest after an incubation period.

Even under pressure though, many people retain their inertia, so that most unemployed people look for jobs in the same occupation as their previous one, despite the fact that it has led to unemployment (Mid Glamorgan TEC 1996). Similarly most people look for work in the same area as the one they live in, which may also be the only one in which they have been unemployed. Crises, perhaps in combination might lead to coping strategies but equally may lead to feelings of resignation (Schratz 1996), while whatever happens at the micro-level in terms of patterns of educational decisions, it seems to lead to neat overall patterns of cultural reproduction (Gambetta 1987). The irony is that choice for the individual can lead to inertia. Overall, the evidence suggests that patterns of participation in education will be strong and hard to break. The "crisis" hypothesis of sudden change in an individual's trajectory being due to another life history change can be tested by this study.

Motivation

Motivation can be provided by compulsion, as with initial schooling and many examples of employer-based training. It can come from peer and family influence and can be expressed in terms of financial cost/benefit, careership or even intrinsic interest. It might be affected by previous educational experiences. Different kinds of motivation may be used by different people, and these may be susceptible to patterns of influence in terms of gender, ethnicity, and social class background. To some extent, the learning trajectory of each person may

therefore begin even before birth. The education and occupation of parents and siblings, and their financial position could be as significant as gender in determining the learning options seen as realistic by each individual. As with careers advice (DfEe 1995), the family is the most common source of guidance on opportunities and availability. As the individual ages this influence gives way to peer groups and finally to life partners (Banks *et al.* 1992). Since educational choices have long-term effects, those made in youth under the influence of family may be the most significant. In the same way that Gambetta (1987) asked why working-class children let themselves get working-class jobs, it is possible to ask why educational profiles appear to be handed down over generations. Social and cultural reproduction can be partly explained by the structural and background variables discussed so far, but another part may be due to attitudinal/motivational factors, which may themselves have social determinants, influencing awareness of the "appropriate" opportunities (e.g. the ACACE survey in Sargant 1996).

Although participation and non-participation in learning may be caused by a complex combination of factors, it may be that the majority of these are related to the motivation to learn. Such a disposition may be the most relevant determinant, and yet the most underestimated by survey methodology (Harrison 1993). Although structural constraints are key issues in educational decisions, within these there may be more than one feasible option for the individual (Gambetta 1987). Since post-16 learners are overwhelmingly voluntary (Edwards *et al.* 1993), there are in most cases at least two possibilities - to participate or not. Unfortunately, many people may feel that once school is over, education is over and that "real life" is something else (Lowe 1970). In this respect, the disaffected students are also by deterred by the compensatory nature of much adult education aimed at them. Why should a second chance be any better than the first? Such courses are not really about continuing education but about starting again (Squires 1993) and perhaps doing it "right" this time. This is compounded by the internalisation of failure (the feeling that I am no good at it, Squires 1993), and by the sometimes boring nature of some academic courses stemming from their irrelevance for most student's lives. For those already disaffected from education, providing even higher loans and grants may not be sufficient to attract them (Coffield 1996). This is one reason why substantive adult learning is predominantly done by those who are already qualified (see Gorard *et al.* 1997b concerning the need to rethink the nature of a learning society).

Those with a disposition to learn are perhaps more likely to emphasise the nature of their work than its terms and conditions (Park 1994). They may be more likely to take the initiative in arranging episodes and to pay a significant proportion of the costs (FEU 1993). They may have needs lower in a hierarchy that are already satisfied, see a congruence between the nature of education and their own self-concept, have good experiences of previous learning leading to a

belief in their own capability, and have a referent group in which learning is normal (McGivney 1991). This is why individual help and policy initiatives, however well-designed, may not overcome the psychological barriers to learning described in Gorard *et al.* (1997b). A high proportion of adult non-participants are seemingly beyond all attempts at motivation (Titmus 1994). There is a need to improve social conditions and decrease the inequality of access to resources on a wider scale (Hodkinson *et al.* 1996). In fact, all of the above determinants need to be addressed, perhaps in the form of equal opportunities and access programmes (Edwards *et al.* 1993), or more likely by utilising and building upon those elements of a post-war learning society in South Wales identified by Gorard (1997d).

Previous typologies of learners

One issue to face is which of those who leave education are likely to return later in life. NIACE (1994) quotes McNair (1993) as having identified has four categories of mature higher education students. These are:

> Deferred beginners, generally in their 20s who are returning to full-time study and are similar in many ways to the more traditional younger students
>
> Returnees, who are mainly women in their 30s who are looking for a change of career, perhaps after a break for domestic and family reasons
>
> Developers, in the age range 30-50 wanting to enrich and extend their knowledge within an existing career pattern
>
> Enrichers, who are seeking new strands to their own development outside an immediate employment frame.

The last three categories of mature students are predominantly part-time. As indicated by these findings, some people will not participate in education for some periods of their life due to personal and family pressure, some of those in education will eventually fail to obtain the qualifications necessary for the next stage in an academic career, and some will be tempted back into education by experiences of training while unemployed or in work or leisure activities.

Hand *et al.* (1994) consider that there are three types of learner after full-time continuous education:

> Continual - who are often professionals faced with lifelong opportunities
>
> By default - who have made an imperfect transition to work
>
> Discontinuous - those who only return to learning due to need. This last category is the most populous.

After a more substantial analysis of secondary data, Tremlett *et al.* (1995) identified five categories of later learners:

Self-funded learning - more often academic or for leisure, tending to be off-the-job, aimed at a qualification or module, of 4-12 months duration, part-time, and in the learners own time. This type of learning is less likely to be relevant to a specific career event.

Employer-funded - this is frequently training for management or administrators or teachers, lasting less than one month, in work time, and either required by an employer or undertaken to make work more satisfying.

Public-authority funded - often aimed at a qualification, with a mixture of on and off-the-job, for four months or more, full-time, in the learner's own time, aimed at help to get a job or to qualify for another course, and more likely to result in a job.

Joint-funded - for management or administrators or teachers, aimed at a qualification, off-the-job or a mixture, more than four months, part time, and required by employer or to increase learner's satisfaction in current job.

Another way of looking at the types is in terms of their motivation. One three category typology is (Harrison 1993):

Goal oriented, with conscious objectives

Learner oriented, learning for its own sake

Activity oriented, therapeutic companionship or to fill leisure time.

A further three-class motivational scheme comes from Fevre *et al.* (1997), where it is suggested that at least part of the reason for low education and training achievement is not the responsibility of the government or employers as much as individuals themselves. People do not behave as economic cost/benefit models, such as human capital theory, suggest. The notion that people participate to increase their future earnings on a rational basis has little descriptive value. There may be three broad types of participants:

Type A - who only learn the skills relevant to a job and as and when needed. This ties in well with the views of employers who generally only wish to fund employer/job specific training.

Type B - who values credentials for their ability to get a job. They may be prepared to fund themselves, rather than leaving it to the state or their employers.

Type C - who trains before getting a job in order to do it better, rather than simply to get the job.

These ideal types and the ones outlined above all have analogues in the eleven trajectory model proposed by the present study (see below).

Hypotheses

One basis premise of this project is that groups of individuals will display characteristic patterns of participation and non-participation in post-compulsory education and training, referred to as trajectories. Others are that it is possible to identify the determinants of these trajectories (so that in principle participation can be predicted for each individual), and that their mix will vary over time and between regions even within a unified national education and training policy. It has been suggested that the determinants are structural, related to the actual opportunities available, as well as social, related to family and cultural background, personal, related to age and gender for example, and attitudinal. It has also been suggested that several of these may interact, so that the relevance of gender varies over time for example, while the implementation of policy initiatives may be mediated by the knowledge and desires of those it is designed to affect. A list of potential determinants provided questions for the survey and prompts for the interviews. It is therefore possible to treat some of these premises and suggestions as hypotheses to be tested in the social laboratory of industrial south Wales over the last 50 years.

The potential determinants include family and peer influence, life crises and changes outside the individual's control, learner identities based on forms of education and past success or failure.

The method used

The data were obtained via a door-to-door survey of 1,104 householders representing a systematic stratified sample of the population of industrial South Wales in the age range 15-65. The life, work and educational histories from the householders and their families were used to define characteristic training or learning trajectories.

One method of identifying the training trajectories might be to distinguish many different types of training and determine their number and frequency of occurrence. An analysis of data from the Youth Cohort Study revealed a wide diversity of experience of training and "*this diversity implies that there are many routes that one might take in analysing the data*" (Dolton *et al.* 1994 p. 196). Under 10,000 cases had over 1,000 different sequences of the seven relatively simple states used in the study, such as unemployed and full-time education. This very large number of sequence of states makes presentation of the data difficult. One woman has a profile of ten distinct states over the three years, including at least one example of each (Dolton *et al.* 1994). It can be imagined how much more diverse the patterns will be in the present study, looking at people differing

in age from 15 to 65. However, over 300 of the sequences of states reported by Dolton *et al.* occur only once in their sample. There are between 10 and 20 common profiles, which is a more manageable number. This would be an empirical approach, although the choice of the number and identification of the states is theoretically based. Some studies, such as Halsey *et al.* (1980) have identified trajectories on a priori grounds based upon policy framework, and others have combined this with a more grounded conceptual approach to identification (Roberts and Parsell 1990). Whichever method is used, the resultant model will depend on theoretical assumptions but also on an interactive fitting and criticism process (Dale and Davies 1994).

A more detailed description of the methods used in this study are given in Gorard *et al.* (1997a), so the discussion here concentrates on the creation of the learning trajectories. All differences and relationships described are significant at the 1% level, using chi-squared, t-tests, one-way analysis of variance, or logistic regression as appropriate. The survey obtained 1,104 outline life histories, with many potential events recorded as a type of episode (such as getting a new job, or starting a new hobby, cf. Dolton *et al.* 1994, Rees *et al.* 1996) and the date on which it took place. These are the primary data on which the eleven trajectories tentatively identified so far are based. As a first step, extraneous variables were eliminated and the life histories were simplified. Since the trajectories were formal learning trajectories, the focus was on those events in each life in which a learning episode could or did take place. There was no need to distinguish between successive sequences of other events involving no learning. In this way, the number of events in each life was reduced, since three full-time jobs in succession with no training for example can be treated as one episode for the sake of this analysis. In summary, each history was converted to a sequence of changes of state from one event to another, after initial school. For example, one very simple history might be:

> leave school aged 15, get a job with a some initial training, then get a series of jobs with no training, then become unemployed.

A more complex history might be:

> stay on in full-time continuous education until aged 22, get a succession of temporary jobs, have a first child, become a full-time mother and housewife, take a series of adult education classes, get a part-time job, get a full-time job with some initial and continuing training.

Table 1
Frequency of each trajectory

Category	Trajectory	Frequency
Disaffected learner	Non-learner	14%
	Near non-learner	19%
Delayed learner	Delayed trainee	10%
	Deferred student	7%
	Twilight learners	1%
Transitional learner	False-start trainee	9%
	False-start student	8%
Immature learner	Still at school	1%
	Still in f/t education	4%
Lifetime learner	Work-based learner	13%
	Early learner	17%

Although there was considerable variety in the life histories, there were far fewer than 1,104 different patterns of learning when described at this level. There were, for example, a large number of histories that included absolutely no report of any formal or leisure-based learning since compulsory schooling. There were a few respondents still younger than the school-leaving age, and a larger number still in full-time continuous further education. Several histories were partly composed of repeated sequences of changes of state, such as part-time job with initial training, pregnancy, part-time job with initial training, pregnancy etc., or temporary job with no training, unemployed, temporary job with no training, unemployed etc. If such repeated sequences are considered as identical regardless of their length, then the actual number of different learning histories becomes surprisingly small. In fact, eleven patterns can be used to describe most of the variations, and these can be grouped into five classes for most analyses (see Table 1). It should be noted that each respondent provided data for nearly 1,000 variables. Only some of these were used to define the trajectories. The remainder are used in this paper and elsewhere to describe systematic differences between them. Although the classification technique has been confirmed by later analyses (Maxwell 1977), it is the fruitfulness of this typology of eleven theoretical trajectories that is the true test of its validity.

Eleven trajectories

Disaffected learner

14% of the respondents reported no education or training after initial schooling, while a further 19% reported only the occasional training episode lasting less than one day in total, usually related to health and safety regulations. The first group have no analogue in previous models since they are the group most frequently ignored as they are unapproachable through lists of participants (and only available due to the door-to-door method of access used here). The second group are archetypal Type A learners according to Fevre *et al.* (1997, see above), but the even so the very small scale of their adult training is a surprise. In total these "non-learners" and near "non-learners" form a "disaffected" group representing one third of the total sample.

Delayed learner

18% of the respondents are categorised as delayed learners since the first substantive learning episode they report is over two years after they leave initial schooling, and after they have made the transition from school to work (cf. the deferred beginners and others described by McNair 1993 and the discontinuous learners of Hand *et al.* 1994, see above). A few of these are "twilight" learners (1%), for whom the first substantive learning episode is after becoming permanently economically inactive through retirement or long-term illness. These may be more activity or learner oriented than goal oriented (Harrison 1993, see above). Of the remainder 10% are delayed work-based trainees, perhaps receiving substantive training in their second or subsequent jobs, while 7% are mature students, returning to some form of post-compulsory education after a break.

Immature learner

1% of respondents still aged 15 and 4% still in full-time education without a break since the age of 16, and these are the "immature" trajectories.

Transitional learner

The remaining 47% reported some learning during the transition from initial schooling to work (percentages have been rounded). Of these, 9% only received substantive training in their first post after leaving school at the minimum age, and have reported nothing since. A further 8% reported no formal learning since leaving full-time post-compulsory education. Together these may be thought of as

"false start" trajectories, or as similar to the "by default" learners described by Hand *et al.* (1994, see above).

Lifetime learner

The remaining respondents have been optimistically classified as "lifetime" learners since they have reported both transitional and later learning episodes, 17% via further education, and 13% via what may be termed "apprenticeship". These two are more like the categories of learners discussed by Tremlett *et al.* (1995, see above), and perhaps identical to the continual learners sketched out by Hand *et al.* (1994, see above).

Table 2
Trajectories by qualification

Trajectory	Qualification 16+	Qualification FTCE	Qualification life
Non-learner	346	327	259
Near non-learner	399	374	302
Delayed trainee	443	413	501
Deferred student	620	564	596
Twilight learner	348	331	300
False-start trainee	459	429	529
Work-based learner	594	544	698
False-start student	742	832	749
Early learner	780	865	836
School	298	284	220
FTCE	805	807	694

[The table shows the mean rank for each trajectory on an ordinal scale ranging from 0: no qualifications to 8: higher degree equivalent. The differences mentioned are significant at the 5% level using Kruskal-Wallis one-way analysis of variance, Norusis 1994).

One way in which the trajectories are clearly different is the level of qualification achieved by each at each age (see for example Table 2). The three groups staying on in full-time continuous education (FTCE) are more highly qualified at 16, and they retain this advantage throughout their lives. This suggests that it is not lack of qualification that causes the some people to stop formal learning after the age of 25 (see below). Similarly, the three groups with no formal learning episodes are less highly qualified at 16, and this position also continues throughout their lives. The twilight learners have a similar profile to non-learners and are not generally interested in certification. The deferred students have a relatively elevated qualification profile at 16, perhaps suggestive of their frustrated early

educational ambitions (see above), but allowing them later re-entry to formal education. The work-based learners may have just "missed the cut" at 5+ GCSEs grades A-C which would have allowed them uncomplicated entry into further education. They would therefore have been prime targets for recruitment to the equivalents of the present Modern Apprenticeship Scheme, which have always had to compete with schools and colleges in a more a less open market for similar school-leavers. The delayed and initial trainees both have qualification profiles in the middle range, perhaps having done enough at school to convince an employer that they were easily "trainable", but not enough to encourage them to stay on at school. The difference between the two groups may be as simple as a difference of opportunities for immediate local training.

The proportion of respondents displaying each trajectory vary significantly by age. Some of these differences are structural/methodological and to be expected. For example, those still in full-time continuous education are much younger. If these, and the 15-24 age group that they mostly comprise are ignored, there has been a clear trend away from disaffection and towards participation in some form of adult education since 1945/46 when the oldest respondents left school. The proportion of each cohort reporting no formal learning has decreased (despite the greater number of years in which participation was possible for the older groups, see Table 3). However this decrease is not chiefly to do with a greater return to education as an adult. The proportion of delayed learners has held relatively constant, or even decreased (but here the difference could be age rather than period related). The proportion of lifetime learners has increased, as has the proportion of those only using education as a transitional state.

Table 3
Trajectory by Age cohort

Trajectory	15-24	25-34	35-44	45-54	55-64
Disaffected	13	26	28	37	43
Delayed	4	8	20	17	22
Immature	38	1	-	-	-
Transitional	22	33	17	16	12
Lifetime	24	31	35	31	22

When these changes are considered for men and women separately (Tables 4, 5), the reduction in disaffection for males took place chiefly for those finishing initial education in the 1950-60s while for women it took place a decade later in the 1970-80s. One implication of this is that it is clear that whereas the reduction in disaffection for men was replaced by an equivalent increase in lifetime learning until the 1980s, for women the increase in lifetime learners was matched

by the front-loaded transitional learners. There are still a large number of female non-learners, and a relatively large number of male lifetime learners.

Table 4
Trajectory by Age cohort (men)

Trajectory	15-24	25-34	35-44	45-54	55-64
Disaffected	12	25	23	20	34
Delayed	5	11	19	20	22
Immature	38	-	-	-	-
Transitional	21	31	15	17	16
Lifetime	24	33	42	43	29

Table 5
Trajectory by Age cohort (women)

Trajectory	15-24	25-34	35-44	45-54	55-64
Disaffected	14	27	32	49	54
Delayed	2	6	20	15	23
Immature	37	2	-	-	-
Transitional	24	35	18	15	8
Lifetime	24	29	29	21	15

Table 6
Leisure learning by trajectory

Trajectory	Reported sustained hobby
Lifetime	27%
Immature	26%
Delayed	25%
Transitional	13%
Disaffected	11%

The lifetime and the delayed learners, as well as those still in education, contain a substantial proportion who reported having hobbies requiring sustained self-study or practice, such as learning a musical instrument, painting, sewing, history or local politics (for more detail see forthcoming paper on learning for leisure). The delayed learners include the small group of twilight learners, 50% of whom reported a hobby. Table 6 shows that the transitional false-start learners continue to differ even in leisure activities from the lifetime learners. They are more similar in profile to the disaffected group which includes the non-learners category only 2% of whom reported having a hobby since age 16. In general, the

better qualified respondents in more prestigious occupations were more likely to report as hobby. However, one exception is that a relatively high proportion of skilled manual workers had a sustained practical or sport-based leisure interest.

Table 7
Characteristic differences between trajectories

	Disaffected	Delayed	Transitional	Lifetime
Disaffected	-		older > female	older > female
		> female < hobbies < mobile		< hobbies < mobile
			> children	> children
		> Blaenau > absentees < qualified	> Blaenau > absentees < qualified	> Blaenau > absentees < qualified
Delayed		-	older	older
	> hobbies > mobile		> hobbies > mobile > children	> children
	> qualified			
Transitional	younger	younger	-	
		< hobbies < mobile		< hobbies < mobile
	< children	< children		
	> qualified	> qualified		
Lifetime	younger > male > hobbies > mobile < children > Bridgend	younger > male < children > Bridgend	> male > hobbies > mobile > Bridgend	-
	> qualified	> qualified	> qualified	

Lifetime learners are more slightly more likely to have been born outside the immediate area of their residence, and tend to have older parents of more prestigious social class with better qualifications who are also slightly more likely to have been born outside the immediate area of their residence. Transitional learners have parents who left full-time education several years older than the other trajectories. A summary of the differences between the various trajectories in terms of personal characteristics appears in Table 7. This shows, for example, that delayed learners tend to be older, with more children, having moved house more often, and more frequently reporting a leisure activity requiring sustained study. It also clarifies that delayed and transitional have little in common, although both have similarities in some respects to both the disaffected and the lifetime learners.

Table 8
The two component model

	POCET yes	POCET no	Correlates
16+ yes	"Lifetime" More male More Bridgend	"Transitional"	Younger Fewer children More qualified, 16
16+ no	"Delayed"	"Disaffected" More female More Blaenau More truants	Older More children Less qualified, 16
Correlates	More house moves More hobbies	Less house moves Less hobbies	

In fact, the pattern is clearer if the correlates of the four trajectory types are organised into a two by two table, with a row representing participation in later post-compulsory education or training, and a column representing participation in continuous full-time education (Table 8). The pattern could be explained parsimoniously in terms of two sets of correlates - one of participation in education after initial schooling and another of participation in learning later in life. This would explain why delayed learners are no more similar to transitional learners than disaffected ones are to lifetime learners. In addition, early analysis suggests that the kinds of correlates relevant to immediate post-16 learning are personal characteristics, such as age, and events in compulsory schooling, such as qualifications gained. For the later learners however, the correlates are more motivational than structural. These are the respondents who are more likely to

move house between geographical regions, and to have a sustained leisure interest requiring study or practice. It is suggested therefore that the determinants of participation at the two life-stages may also differ, perhaps being based on background characteristics such as family occupational class initially, but changing to personal and motivational factors bounded by the opportunity structure in later life. Table 8 also suggests a third class of trajectory determinants, such as gender and area of residence, which may affect participation in learning throughout life.

This two component model of educational determinants could partly explain the changes in the mix since 1945. Most of the policy changes have been front-loaded, encouraging more children to stay on at school, and extending the length of their adolescence (see Gorard et al. 1997b). This has led to an increase of both transitional and lifetime learners without affecting their prevalence relative to each other, but has had no positive effect on the numbers returning to education or training. This may seem counter-intuitive to those witnessing a growth of mature students in FE/HE but it may be due to such students changing their patterns of type of participation from LEA evening classes for example to part-time academic courses (i.e. robbing Peter to pay Paul). A genuine growth in delayed learning, such as that which occurred for men in South Wales in the 1950s and 1960s, could presumably only be produced under this model by identifying and tackling the specific determinants of delayed participation.

Predicting trajectories

The trajectories are defined solely in terms of events occurring after initial schooling, but it is possible to predict quite accurately which trajectory someone will be on solely in terms of events occurring up to the end of initial schooling. The trajectories were devised over a period of time as successive waves of the survey results arrived, and logistic regression models were created and modified to try and predict the trajectory for each respondent based only on what they report about themselves up to the age of 16. There were 31 potential predictor variables including:

year of birth
area of residence
gender
ethnicity
family religion
language spoken at home
whether a regular school attender
length of residence in South Wales when aged 15

type of secondary school attended at age 15
number of children by age 15
number of siblings when aged 15
whether qualifications taken at age 16
qualifications gained at age 16
the age at which each parent left school
occupational and social class of each parent
educational qualification of each parent

These were fed into a series of equations having a dependent variable with only two values - whether the respondent is predicted to follow a particular trajectory or not (cf. Felstead 1996). For example, a function to decide the odds of an individual being a lifetime learner rather than a disaffected one (rows one and five in Table 6) was 90% accurate (see Table 8) with a reasonably clear division between learners and non-learners (see Figure 1). This figure will probably be improved with a fuller investigation of the effects of interactions, for example between gender and area of residence, or between age and type of school. The quality of the model in terms of goodness of fit to the data and its log-likelihood is adequate (Table 9).

Figure 1 Observed groups and predicted probabilities
[Predicted probability is of membership for lifetime learner
Symbols: 0 - Disaffected 1 - Lifetime
Each symbol represents 10 cases].

Table 8
Classification Table

observed/predicted	Disaffected	Lifetime	correct
Disaffected	176	24	88.00%
Lifetime	21	206	90.75%
Overall 89.46%			

Table 9
Quality of the logistic model

-2 Log likelihood	212		
Goodness of fit	250	df	significance
Model chi-square	228	24	.0000
Improvement	10	4	.0050

[The model figure is for the six variable model compared to one with a constant only. The improvement figure is for the six variable model compared to the previous five variable model].

This function retained only six predictor variables, all others explaining no significant proportion of the variance net of the effect of the others, using forward stepwise selection via the conditional statistic (Norusis 1994), in order to maximise the effectiveness of the predictions while minimising the number of predictors (Pedhazur 1982). The six independent variables were area of residence, gender, type of school, attempting qualifications, qualification at age 16, and occupational class of father (Table 10). Therefore the age of the respondent *per se* is not a significant factor. It is the changing influence of determinants such as schooling and family background that matters. Since these variables are all categorical with deviation coding (allowing simple use of interaction effects, Norusis 1994), any change in the odds that they produce are measured in terms of an average respondent.

Compared to the average respondent, the odds of being a lifetime learner are the antilogarithm of the sum of each of the coefficients for which the associated variable is "true" for the individual in question. In theory anyone from the three research areas can be fitted to the equation and their odds calculated. For example, a man living in Neath who attended a grammar school, passing seven O levels whose father was a dentist, would have the following odds of being a lifetime learner.

e to the power of (+1.82 +.64 +.60 +.62 +.64 +.75 +.56) = 279

Whereas a woman living in Blaenau Gwent who attend a comprehensive school, attempted no qualifications and whose father was a security guard would have these odds:

e to the power of (+1.82 -.64 -.68 -.63 -.64 -.87 -1.74) = 0.03

Table 10
Variables in the equation

Variable	Coefficient	Significance
Area of residence	-	.00
Bridgend	+.08	.67
Blaenau Gwent	-.68	.00
Neath Port Talbot	+.60	-
School attended	-	.03
Comprehensive	-.63	.01
Grammar	+.62	.06
Secondary Modern	-.16	.47
Other	+.17	-
Attempt qualifications	+.64	.02
Not attempt qualifications	-.64	-
Qualification at 16	-	.03
none	-.87	.04
elementary	-.27	.44
1 to 4 'O' levels	+.39	.25
5+ 'O' levels	+.75	-
Father's occupation	-	.18
Management/admin	-.01	.99
Professional	+.56	.71
Associate professional	-1.02	.52
Clerical/secretarial	+6.21	.55
Craft and related	-1.18	.38
Personal and protective	-1.74	.22
Sales	-.58	.75
Plant and machine	-.83	.54
Other	-1.41	-
Male respondent	+.64	.00
Female respondent	-.64	-
Constant	1.82	.17

[the significance equals the probability that the coefficient is actually zero, as determined by the Wald statistic, Norusis 1994.]

Further analysis also suggests that the predictors to distinguish between a delayed or a transitional trajectory are different to those in Table 10, including family religion, mother's qualifications, mother's age of leaving full-time education, plus gender by truancy, age by area of residence, area by truancy and area by initial qualification interactions. The level of predictability is at least as high as for disaffected/lifetime (93.34%). However, the classification of transitional/lifetime learners is significantly lower (80.03%) which is as would be expected if the two component theory is correct, since both lifetime and transitional learners would presumably share similar initial determinants, differing only in their later determinants whose reporting might be right-censored by the nature of the sampling.

Conclusion

Of the many "hypotheses" derived above, several have been tested by the analysis so far. There are discernible and useful patterns of participation in adult learning. These patterns are predictable, largely in terms of social and educational background. However, their occurrence varies over time and between research sites. The next step is to perform a fuller event history analysis incorporating more interaction effects between the simple predictor variables, to clarify the respective roles of life events such as changing employment, moving house, having a child, or losing a partner in the creation and modification of learning trajectories. In order to test the two component theory it is necessary to consider each of the six two-way predictions between the four mature trajectory types in more detail, and in order to clarify the picture for all trajectory-determinants a series of polychotomous logit loglinear models will be created.

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Appendix A - Development of the learning trajectories

Results of the pilot

The different states identified by the survey were:
Full-time continuous post-initial education (FE)
Full-time employment or part-time of 16+ hours per week (FT)
Part-time employment of less than 16 hours per week (PT)
Succession of temporary jobs (TE)
Retired or permanently sick (RE)
Temporarily sick (IL)
Unpaid work or housework (HO)
Unemployed (UN)
Work-related training lasting more than one week (TR)
Post-compulsory education or training (PO)

TR and PO can occur simultaneously with any of the other states and with each other. The order in which these 10 states occurs in the history of the case determines the learning type. The pilot had 80 cases, of which 78 contained complete histories. There are six working categories which can then be further analysed (and modified) in terms of gender, qualifications, area, age and so on. The complete list of sequences is shown with number of cases and learning episodes shown in bold.

Non-learners (34 cases)

The simplest cases consist of leaving school at the earliest opportunity, and working full-time in one or more jobs (FT) with no substantive training. Further cases have the same simple history but are now retired (FTRE). These cases are effectively the same type at different stages of development, all having no mention of any post-compulsory learning at all. Variants moved from FT to a part-time job (FTPT), or to a succession of temporary jobs and back to full-time (FTTEFT), or to being unpaid probably as a housewife (FTHO), or moved repetitively through the sequence (FTHOFTHO etc.) or changed to part-time after one repetition (FTHOFTHOPT). A similar repetition occurs with unemployment (FTUN and FTUNFTHO and FTUNFTUNFTUN). What this type has in common is that every other type involves some learning. However, apart from FTRE, all of the non-learners could convert into late or twilight learners. The twilight learners category contains cases that start in just this way. Whether they do convert may be predictable from their age and other background characteristics. This class can also be further sub-divided into those who have not had any training at all, and those who have only had what the survey defines as non-substantive.

FT RE	11 cases
FT	7 cases
FT PT	1 case
FT TE FT	1 case
FT UN FT UN FT UN	1 case
FT HO FT HO PT	1 case
FT UN FT HO	1 case
FT HO FT	2 cases
FT HO FT HO FT	1 case
FT HO	3 cases
FT HO PT	2 cases
FT UN	1 case
FT UN FT	2 cases

Initial Work-based learners (12 cases)

These cases all move straight to full-time employment with some form of training. The simplest are [FT&TR]. As a group these suggest that a case starting with work-based training, even with minimal education is more likely to be a learner throughout their life.

FT&**TR** FT PT&**TR** RE	1 case
FT&**PO** FT HO PT RE	1 case
FT&**TR** FT&**TR**&**PO** TE FT&**PO**	1 case
FT&**TR**	2 cases
FT&**TR** HO	1 case
FT&**TR** HO FT	1 case
FT&**TR** FT	2 cases
FT&**TR** FT FT&**TR**	1 case
FT&**PO** FT FT&**PO**	1 case
FT&**TR**&**PO** FT	1 case

Delayed work-based learners (8 cases)

These cases move directly from full-time employment to full-time employment with some form of training. In general the delayed learners do not seem as likely to maintain their learning as the initial work-based learners. Several cases have retired without any further learning episode.

FT FT&**TR** IL FT RE	1 case
FT FT&**TR** FT RE	1 case
FT FT&**PO**	2 cases
FT FT&**TR**&**PO**	1 case
FT FT&**TR** HO PT	1 case
FT FT&**TR** RE	1 case
FT FT&**TR** UN FT RE	1 case

Late learners (3 cases)

These cases start with a non-learner sequence, such as FTHO, but then diverge to full-time education, perhaps after a family, to later full-time employment with further learning of some form. In each case the learner remains an active part of the workforce after learning, as opposed to the twilight learners.

FT **PO** FT FT&**TR** RE	1 case
TE **PO** FT UN&**PO** RE	1 case
FT HO **PO** FT&**TR**	1 case

Twilight learner (4 cases)

These cases run through a non-learner sequence, such as FTHOPT, for their active working life so far, and the first learning episode only appears at retirement. The superficially similar cases ending in unemployment have been placed here, but in a later classification may become a new category.

FT HO PT FT RE&**PO**	1 case
FT HO FT HO RE&**PO**	1 case
FT UN FT UN&**PO**	1 case
FT UN&**PO**	1 case

Further education (17 cases)

The remaining cases all start their sequence with at least one episode of further education immediately after the end of initial education. This most commonly led to full-time employment, the simplest being FEFT and FEFTRE. As with the initial work-based learners, although there is no guarantee, those staying on after the compulsory school leaving age seem more likely to undertake some form of later learning. This category is likely to separate into two or more groups with a larger sample, perhaps into those who do and those who do not return to education.

FE FT FT&**TR** FT RE	1 case
FE FT FT&**TR** RE	1 case
FE FT HO FT FT&**PO** RE&**PO**	1 case
FE FT&**TR** RE	1 case
FE FT	3 cases
FE FT FT&**TR&PO**	1 case
FE FT FT&**TR**	1 case
FE FT RE	2 cases
FE FT HO PT	1 case
FE FT HO FT HO FT	1 case
FE FT HO FT HO FT TE PT&**PO**	1 case
FE FT&**PO**	2 cases
FE TE FT **PO** PT	1 case

All classifications containing work-based training episodes can be further sub-divided into those who were and were not voluntary learners. However, increasing the number of classes also increases the number of cells in comparison tables, reducing the likelihood of finding significant differences between learner types, and so reducing the accuracy of predicting the trajectory from the initial characteristics via log-linear models. There is currently some confirmation, even from the few cases in the pilot that these types may work.

The non-learners show the least diversity, since they have no data available on learning episodes. They are probably older than several other groups, more often unmarried, and did not attempt any qualifications at school. The twilight learners are similar in every respect except for their later education. All other groups have higher qualified partners than the non-learners, and their mother is more likely to have moved from outside the immediate area.

Those who have been through FE have higher qualified and higher social class family members, more often come from outside the immediate area, more often attempted qualifications at school (without apparently any great success), but studied for fewer post-compulsory episodes than other learners (who may simply be catching up, having delayed their FE). The initial and delayed work-based learners attempted more qualifications at school than the non-learners, took more other educational courses, and the initial learners more often moved from outside the area.

The next stage of analysis is to consider the duration of each episode, perhaps coding each step as a code and a number of years, e.g. FT3 HO7 PT2. Similarly those who have reached the terminus of their trajectory can be separated from those for whom a change of direction is still possible. Also it may be important to take previous failure into account.

Second scheme after first wave of the main survey

1. Non-learner - someone who has not undertaken substantive training or education since reaching school leaving age.

A. **Non-learner** - someone who has neither studied independently as part of a hobby, nor undertaken any training of any kind since SLA.

B. Minimal learner - a non-learner who has either undertaken one-day training courses at work or studied as part of a hobby.

i. **Minimal trainee** - someone who has undertaken one-day training courses at work, including health and safety.

ii. **Hobbyist** - someone whose only experience of learning since SLA has been a hobby.

2. Learner- someone who has undertaken substantive training or education since reaching school leaving age.

C. Delayed learner - someone who did not experience substantive training or education immediately after the post-SLA transition.

iii. **Delayed trainee** - someone whose first experience of learning since the post-SLA transition has been substantive training at work.

iv. **Deferred student** - someone whose first experience of learning since the post-SLA transition has been a return to formal education.

v. **Twilight learner** - someone whose first experience of learning since the post-SLA transition has been at the end of their working lives.

D. Transitional learner - someone who experienced substantive training or education immediately after the post-SLA transition.

vi. False-start learner - someone who has not experienced substantive training or education since that immediately following the post-SLA transition.

a. **False-start trainee** - a false-start learner, whose initial training was undertaken at work.

b. **False-start student** - a false-start learner, whose further education was undertaken full-time.

vii. Lifetime learner - someone who has experienced substantive training or education since that immediately following the post-SLA transition.

c. **Lifetime trainee** - a lifetime learner, whose initial training was undertaken at work.

d. **Lifetime student** - a lifetime learner, whose further education was undertaken full-time.

Third scheme after second wave of the main survey

<table>
<tr><td></td><td></td><td colspan="2">plus later learning</td><td>no later learning</td></tr>
<tr><td rowspan="3">Transitional learning</td><td></td><td colspan="2">lifetime learner</td><td>false-start learner</td></tr>
<tr><td></td><td>academic</td><td>vocational</td><td></td></tr>
<tr><td>vocational or academic</td><td colspan="2">lifetime trainee / lifetime student</td><td>false-start trainee / false-start student</td></tr>
<tr><td rowspan="4">No transitional learning</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>deferred student</td><td>delayed trainee</td><td>non-learner</td></tr>
<tr><td></td><td>(+twilight)</td><td></td><td>(+minimal)</td></tr>
<tr><td></td><td colspan="2">delayed learner</td><td>non-learner</td></tr>
</table>

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Appendix B - The survey responses

In the main study 1,111 respondents completed the entire questionnaire and these were adequately stratified by area, age and gender. The primary response rate of 80% was at least as good as other major surveys of this kind (SCELI 1991, Gershuny and Marsh 1994) and the debriefing of the interviewers did not suggest any evidence of bias in terms of who did and who did not agree to participate. Analysis of the frequencies for economic status suggests that those with long-term illnesses and those taking early retirement may be over-represented, although it is also possible that this is a valid result, given the background data for some of the research sites (see Working Paper 1).

In the majority of cases, the answers given by each individual were consistent. Dates did not clash or overlap, although there were occasional gaps in some work histories. In one case it was discovered that the respondent had not given any information relating to episodes before arrival in the UK in middle-age. Some women treated pregnancy as a period lasting precisely nine months even when followed by full-time child-care, while others reported pregnancies lasting two or more years before a return to work. Comparison of the answers given to different questions by each individual generally confirmed the reasonable quality of the survey. Where they were not consistent, a check on the numbered questionnaire form mostly revealed an error of coding or transcription. Where this was not the case, the respondent was re-contacted by telephone if possible to remedy the inconsistency. The general trends at a higher level of aggregation also confirm the validity of the responses. For example, comprehensive schools do not appear in life histories of respondents in the oldest cohort, and in successive cohorts they gradually replace secondary modern and grammar schools. Very few report attending either technical schools, which never existed in South Wales or fee-paying schools of which very few exist in South Wales (Gorard 1996). A third estimate of reliability came from comparison of the independent reports of the first wave on their children and the reports of the second wave on their parents. It has been suggested that reports of parents and children about each other are often unreliable (Pifer and Miller 1995). Inconsistencies were discovered, but were rare in this survey. It was more common for respondents not to know about family members and to be prepared to admit their ignorance. The age at which their mother left school for example might simply be coded as missing.

In general, although there are some mistakes and some evidence of selective recall, other researchers confirm that work histories are generally reliable, with inconsistencies occurring in less than 1% of cases. In the SCELI (1991) study for example, only one case of the total of 6,112 was deleted from analysis as being too unreliable. The quality of responses here was sufficient for analysis to proceed safely.

Appendix C - The survey coding scheme

Proposed Occupational, Social and Industrial Classifications, as used by NOMIS, DfEe and Welsh Office. These are not always the most up-to-date, but they in the same format as the background data such as those from the Census 1981.

Occupational classification
1. Managers and Administrator
2. Professional
3. Associate Professional
4. Clerical and Secretarial
5. Craft and related
6. Personal and Protective services
7. Sales
8. Plant and Machine Operatives
9. Other

Social class
I. Professional
II. Managerial/Technical
IIIN. Skilled non-manual
IIIM. Skilled manual
IV. Partly skilled
V. Unskilled
Other

Industrial classification
1. Agriculture and fishery
2. Energy and Water
3. Mining, metal/chemical manufacture
4. Metal goods, engineering and vehicle
5. Manufacturing
6. Construction
7. Distribution, Hotel and Restaurant, repairs
8. Transport and communications
9. Banking, finance
10. Other Services

A coding system for hobbies and leisure interests was devised, and will be described in a future paper.

Some changes have been made to the coding system implicit in the questionnaire (see Working Paper 2):

For all questions relating to type of school/institution, a code of 8 was added to represent a Technical College.
As a reason for not completing a course of study, a code of 77 represents called up for National Service, and in one case disabled by car accident.
As an economic episode, the code for "others" includes Prison, National Service, and Travelling.
In response to who supplied an episode of work-based training, a code of 1 for employer includes also training by the manufacturer of a piece equipment (or supplier), while "other" includes open learning.

"Other" qualifications from an episode of work-based training include HGV, Diving certificate, and Nursing Project 2000.
As another reason for not completing a voluntary POCE course, "other" includes a large number of "married" or "met husband" responses (this in itself is a revealing finding).
A new category for all responses relevant to members of family is "deceased".

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